

Recovery Plan Action Status

Plan Name: Recovery Plan for the Hawaiian Monk Seal (*Monachus schauinslandi*)

Plan Status: Final

Plan Date: 22-Aug-07

Lead Agency: NMFS

Lead Office:

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	1.1	Define diet by age, sex, location, season (variety of methods) and characterize feeding areas quantitatively (e.g., with CRITTERCAM, video technology)	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Dietary Studies	Species Expert	
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	1.2	Assess and monitor prey abundance; study prey selection; research must continue in order to have an independent measure of monk seal prey abundance	Ongoing Current			Pacific Islands Fisheries Science Center	Work type not yet selected	Labor type not yet selected	
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	1.3	Determine whether prey abundance is limiting population growth	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Population Assessment	Species Expert	Part of 12.2.7
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	1.4	Evaluate demographic consequences in relationship to complex linkages between prey availability and foraging behavior	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Dietary Studies	Species Expert	Part of 1.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	1.5	Investigate competition with other top predators and commercial and recreational fisheries in the NWHI and MHI	Ongoing Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Evaluation of CRITTERCAM deployments
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	2	1.6	Investigate effects of oceanographic variability on prey abundance and availability and on foraging success	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Oceanographic Studies	Species Expert	Part of 1.1 & 1.2

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Hawaiian monk seal (Monachus schauinslandi)	2	1.7	Enhance survival by translocating juvenile female seals to areas of higher survival probability	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management	Species Expert	Implement as appropriate based on information from 1.3, costs are to be determined
Hawaiian monk seal (Monachus schauinslandi)	1	1.8	Rehabilitate malnourished juvenile seals when and where food limitation is apparent to salvage their reproductive potential	Not Started			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Work type not yet selected	Labor type not yet selected	
Hawaiian monk seal (Monachus schauinslandi)	3	10.1	Ensure monk seal concerns are included in all vessel grounding response planning	Ongoing Not Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Reduce Threats in/to Marine Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 8.1
Hawaiian monk seal (Monachus schauinslandi)	2	10.2	Provide a rapid response, removal, and ecological assessment and monitoring of vessel groundings	Ongoing Not Current			Pacific Islands Regional Office, Fish and Wildlife Service	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Reduce Threats in/to Marine Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	Cost to be determined; completed on a case by case basis and will implement as necessary
Hawaiian monk seal (Monachus schauinslandi)	3	10.2.1	Identify and pre-place equipment on appropriate islands to ensure a rapid response to compromised and grounded vessels	Not Started			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Reduce Threats in/to Marine Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	Cost to be determined; completed on a case by case basis and will implement as necessary

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Hawaiian monk seal (Monachus schauinslandi)	3	10.2.2	Establish a trained, well-equipped emergency response team to evaluate and potentially treat HMS during an event involving compromised or grounded vessels	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Reduce Threats in/to Marine Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 8.1
Hawaiian monk seal (Monachus schauinslandi)	3	10.2.3	Identify experts and develop protocols for habitat restoration activities, to reduce impacts from compromised and grounded vessels	Ongoing Not Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Reduce Threats in/to Marine Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 8.1
Hawaiian monk seal (Monachus schauinslandi)	2	10.2.4	Ensure proper funding for monk seal and habitat monitoring post-event, to reduce impacts from compromised and grounded vessels	Not Started			Pacific Islands Regional Office	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Reduce Threats in/to Marine Habitats	Internal Technical Assistance, Species Expert	Cost to be determined; completed on a case by case basis and will implement as necessary
Hawaiian monk seal (Monachus schauinslandi)	3	10.2.5	Maintain contingency plan outlining how agencies work together during an event involving compromised or grounded vessels	Not Started			Pacific Islands Regional Office	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Planning, Management: Reduce Threats in/to Marine Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 8.1

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Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	10.2.6	Immediately remove debris from a vessel grounding that might result in entanglement of monk seals	Not Started			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Reduce Threats in/to Marine Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 2.2.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	3	10.2.7	Publish vessel grounding response plans	Not Started			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, State of Hawaii	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Reduce Threats in/to Marine Habitats	Internal Technical Assistance, Species Expert	Part of 8.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	3	10.2.8	Provide educational material for appropriate vessel grounding response plans	Not Started			Pacific Islands Regional Office	Other: Information and Education	Internal Technical Assistance, Species Expert	Part of 13.3
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	3	11.1	Continue collection of samples from seal and prey species and banking of samples for potential contaminant monitoring	Ongoing Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Environmental Contaminants	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	3	11.2	Examine data for association between reproductive failure and exposure to contaminants and conduct a risk assessment specific for monk seals	Not Started			Pacific Islands Fisheries Science Center	Research: Environmental Contaminants	Internal Technical Assistance, Species Expert	
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.1	Continue annual population monitoring in the NWHI	Ongoing Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Demographic Studies, Research: Population Assessment, Research: Population Surveys	Internal Field Assistance, Internal Technical Assistance, Species Expert	

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Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.2.1	Record identities of all seals using each site (as part of continued population monitoring and research)	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Population Assessment, Research: Population Surveys	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.2.2	Identify seals that move between subpopulations (as part of continued population monitoring and research)	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Population Assessment, Research: Population Surveys	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.2.3	Record observed threats to survival (as part of continued population monitoring and research)	Ongoing Current			Pacific Islands Fisheries Science Center	Research, Research: Demographic Studies, Research: Population Assessment	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.2.4	Record reproductive data using all current techniques (as part of continued population monitoring and research)	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Population Assessment, Research: Population Surveys	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.2.5	Adjust timing of annual field studies to optimize demographic data collected (as part of continued population monitoring and research)	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Population Assessment, Research: Population Surveys	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	2	12.2.6	Assign pups to mothers using DNA methods (as part of continued population monitoring and research)	Not Started			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Genetics, Research: Population Assessment, Research: Population Surveys	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 12.1 Feasibility study

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Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.2.7	Develop methods to integrate the demographic monitoring with management experiments, foraging studies, prey abundance surveys, and oceanographic monitoring, with an aim to eventually resolving the causal factors that are important in influencing the vital rates	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Dietary Studies, Research: Management Techniques, Research: Oceanographic Studies, Research: Population Assessment, Research: Population Surveys	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.3.1	Improve database accessibility and develop database management manual (as part of continued population monitoring and research)	Not Started			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Management Techniques, Research: Population Assessment, Research: Population Surveys	Internal Technical Assistance, Species Expert	Part of 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.3.2	Continue annual site-specific and NWHI-wide statistical analyses (as part of continued population monitoring and research)	Not Started			Pacific Islands Fisheries Science Center	Work type not yet selected	Labor type not yet selected	Part of 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.4.1	Maintain monk seal population model (as part of continued population monitoring and research)	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Population Assessment, Research: Population Surveys	Species Expert	Part of 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.4.1.1	Implement MHI research plan to assess distribution, abundance, movements and vital rates of monk seals in the MHI	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Population Assessment, Research: Population Surveys	Graduate Student, Internal Technical Assistance, Species Expert	Augments MHI population monitoring program
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	12.4.1.2	Add annual NWHI, MHI data (as part of continued population monitoring and research)	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Population Assessment, Research: Population Surveys	Species Expert	Part of 12.1 & 12.4.1

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Hawaiian monk seal (Monachus schauinslandi)	1	12.4.2	Develop PVA for monk seals	Not Started			Pacific Islands Fisheries Science Center	Research: Population Assessment	Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	1	12.4.3	Develop models linking foraging, diet, physical condition of seals and demography	Not Started			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Dietary Studies, Research: Population Assessment	Species Expert	Part of 1.1, 8.1 & 12.1
Hawaiian monk seal (Monachus schauinslandi)	3	12.5	Conduct hypothesis driven ecological experiments to evaluate potential options for enhancing monk seal recovery	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Ecosystem Studies, Research: Population Assessment, Research: Population Surveys	Species Expert	Part of 1.1, 8.1 & 12.1
Hawaiian monk seal (Monachus schauinslandi)	1	13.1	Develop a MHI monk seal management plan that addresses all critically important assessment, disease, regulatory, intervention, coordination, and education needs	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management, Management: Planning	Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	1	13.2	Implement the MHI management plan described in action 13.1	Not Started			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management: General	Internal Field Assistance, Internal Technical Assistance, Species Expert	Included in other action items, particularly 8.1 and 13.3
Hawaiian monk seal (Monachus schauinslandi)	1	13.3	Implement a statewide, multi-media information campaign, drawing on professional expertise in public education and social marketing.	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management, Other: Information and Education	Internal Technical Assistance, Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	2	13.4	Use a performance monitoring and evaluation system to measure the effectiveness of education and outreach activities and to identify program changes to enhance effectiveness	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management, Other: Information and Education	Internal Technical Assistance, Species Expert	Part of 13.3

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Hawaiian monk seal (Monachus schauinslandi)	1	13.5	Target numerous audiences including, fishers, marine resource managers, beach and ocean users, and the visitor industry, in implementation of the MHI management plan described in action 13.1	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, State of Hawaii	Management: General, Other: Information and Education	Internal Technical Assistance, Species Expert	Part of 13.3
Hawaiian monk seal (Monachus schauinslandi)	2	13.6	Complete a focused survey about the social behaviors and relationships of monk seals to investigate the cultural concerns of the Native Hawaiian community, the general public perception of Hawaiian monk seals and the nearshore interactions with fishermen, divers, public to evaluate frequency, characteristics, and impacts of interactions	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, State of Hawaii	Management: General, Other: Information and Education	Internal Technical Assistance, Species Expert	Part of 13.3
Hawaiian monk seal (Monachus schauinslandi)	1	14.1	Hire a Hawaiian Monk Seal Recovery Coordinator for NMFS PIRO to ensure the timely and efficient implementation of the revised recovery plan and coordination among PIRO, PIFSC, and other agencies and non-governmental organizations	Ongoing Current			Pacific Islands Regional Office	Management: General	Species Expert	

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Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	14.2	Support an integrated education and outreach program by NOAA Fisheries in close collaboration with other government agencies and non-government partners. Program goals should include minimizing human disturbance and other adverse impacts and maximizing public support for conservation activities	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, State of Hawaii	Management: General, Other: Information and Education	Internal Technical Assistance, Species Expert	Part of 13.3
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	14.3	Maintain staffing needed to address management concerns in the NWHI and MHI	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, State of Hawaii	Management: General, Other: Administration, Research	Internal Administrative, Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 8.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	14.4	Maintain a research program in the NWHI and the MHI sufficient to provide the information required by managers	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, State of Hawaii	Management: General, Research: General	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 1.1 & 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	14.5	Maintain a Hawaiian Monk Seal Recovery Team and use the team to provide outside advice and review of actions needed to accomplish recovery	Ongoing Current			Pacific Islands Regional Office	Management: General	Internal Administrative, Internal Technical Assistance, Species Expert	Part of 8.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	14.6	Revise the Recovery Plan for the Hawaiian Monk Seal at appropriate intervals	Not Started			Pacific Islands Regional Office	Management: General, Research: General	Internal Technical Assistance, Species Expert	
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	2.1	Continue programs that facilitate the disentangling of animals	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service	Research: Management Techniques	Species Expert	Action conducted as part of the annual monitoring program, See 12.1

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Hawaiian monk seal (Monachus schauinslandi)	1	2.2.1	Continue focused clean-up effort on high entanglement risk zones in the water	Ongoing Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Habitat Status	Internal Field Assistance, Internal Technical Assistance, Species Expert	Augment ongoing work by the Coral Reef Ecosystem Division; this total assumes ongoing funding of \$500k
Hawaiian monk seal (Monachus schauinslandi)	1	2.2.1.1	Monitor marine debris accumulation rates and identify areas of greatest potential risk	Ongoing Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Habitat Status	Internal Field Assistance, Internal Technical Assistance, Species Expert	Augment ongoing work by the Coral Reef Ecosystem Division
Hawaiian monk seal (Monachus schauinslandi)	2	2.2.1.2	Remove debris from beaches to prevent entanglement of monk seals	Ongoing Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Habitat Status	Internal Field Assistance, Internal Technical Assistance	Part of 2.2.1.
Hawaiian monk seal (Monachus schauinslandi)	3	2.3.1	Work with partners to support integration of source markers into fishing gear, to assist in programs to prevent entanglement of monk seals	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Research: Habitat Status	Internal Field Assistance, Internal Technical Assistance	Augment ongoing work by the Coral Reef Ecosystem Division - No Cost
Hawaiian monk seal (Monachus schauinslandi)	3	2.3.2	Implement education and marine debris programs targeting identified sources of fishing gear causing entanglement of monk seals	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management	Internal Technical Assistance, Species Expert	Augment ongoing work by PIFSC and PIRO
Hawaiian monk seal (Monachus schauinslandi)	1	3.1	Continue monitoring shark activity and predation events	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Predation	Internal Field Assistance, Internal Technical Assistance, Species Expert	Included in 12.1
Hawaiian monk seal (Monachus schauinslandi)	1	3.2	Remove problem sharks, to reduce shark predation	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service, State of Hawaii	Research: Predation	Internal Field Assistance, Internal Technical Assistance, Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	1	3.2.1	Develop general criteria (and site-specific plans) for shark removal to reduce shark predation	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Predation	Internal Field Assistance, Internal Technical Assistance, Species Expert	Completed on a case by case basis

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Hawaiian monk seal (Monachus schauinslandi)	1	3.2.2	Refine methods for shark removal to reduce shark predation	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Predation	Species Expert	Included in 3.2
Hawaiian monk seal (Monachus schauinslandi)	1	3.2.3	Maintain needed permits for shark removal and/or other intervention to reduce shark predation	Ongoing Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Predation	Species Expert	Included in 3.2
Hawaiian monk seal (Monachus schauinslandi)	1	3.2.4	Be prepared for rapid response to shark predation events	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Predation	Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	1	3.2.5	Have trained staff and gear for intervention, to reduce shark predation	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Predation	Internal Field Assistance, Internal Technical Assistance, Species Expert	Included in 3.2
Hawaiian monk seal (Monachus schauinslandi)	1	3.3	Continue moving seals after weaning if necessary to protect from shark predation	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Research: Predation	Internal Field Assistance, Internal Technical Assistance, Species Expert	Included in 3.2
Hawaiian monk seal (Monachus schauinslandi)	1	3.4	Characterize trends in shark abundance, movement patterns, and predation losses throughout the NWHI in relation to these interventions and conduct shark behavior research	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Predation	Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	1	4.1.1	Reduce the risk of exposure of exotic diseases to the Hawaiian archipelago through quarantine, vector control, and education programs	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service	Research: Disease	Species Expert	Included in 4.3 and 13.1

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Hawaiian monk seal (Monachus schauinslandi)	2	4.1.2	Increase surveillance on Necker and Nihoa Islands to prevent introduction and spread of infectious disease, as these are the places where interaction between MHI and NWHI seals is most likely	Ongoing Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Disease	Internal Field Assistance, Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	1	4.1.3	Further develop protocols for improving early detection of diseases in seals by opportunistic sampling for diseases	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Research: Disease	Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	1	4.1.4	Continue to examine sick animals in the NWHI and MHI to determine cause(s) of disease and treat them appropriately	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Research: Disease	Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	1	4.1.5	Develop and implement contingency management plans for known high-risk diseases	Ongoing Not Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management: Disease Control, Research: Disease	Species Expert	Included in 4.3
Hawaiian monk seal (Monachus schauinslandi)	2	4.1.6	Evaluate the use of vaccines for monk seals to high-risk diseases (e.g. morbillivirus, WNV, leptospira vaccines)	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Research: Disease	Species Expert	Evaluate after 5 years of effort
Hawaiian monk seal (Monachus schauinslandi)	2	4.1.7	Investigate whether controlled research on deworming could be conducted (on other species or on monk seals) in order to improve juvenile survival by reduction of parasite stress, including the potential negative impacts if not conducted properly	Partially Complete			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Research: Disease	Internal Field Assistance, Internal Technical Assistance, Species Expert	

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Hawaiian monk seal (Monachus schauinslandi)	2	4.1.8	Investigate management actions to prevent mother-pup pairs from coming in contact with disease contaminated streams	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service	Management: Disease Control	Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	3	4.1.9	Plan for and take appropriate management actions to prevent spread of disease if northern elephant seals from California are found in the HI chain	Ongoing Not Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management: Disease Control	Internal Field Assistance, Internal Technical Assistance, Species Expert	Cost to be determined; completed on a case by case basis
Hawaiian monk seal (Monachus schauinslandi)	2	4.2	When data is sufficient, determine the associations between reproductive failure, survival and infectious diseases	Ongoing Not Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Research: Disease	Species Expert	Cost to be determined; data not currently sufficient to assess
Hawaiian monk seal (Monachus schauinslandi)	1	4.3	Maintain current disease monitoring programs	Ongoing Not Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management: Disease Control	Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	2	5.1.1	PMNM must maintain proclamation provisions and should monitor human activity in the PMNM through the use of observers, video recorders, and/or vessel tracking devices	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service, State of Hawaii, National Ocean Service	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Reduce Threats in/to Marine Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	No Cost
Hawaiian monk seal (Monachus schauinslandi)	2	5.1.2	Maintain current ESA Critical Habitat designations with possible extension as new data are collected	Ongoing Current			Pacific Islands Regional Office	Management: Identify/Protect Foraging, Breeding and Mig Habitats	Species Expert	No Cost
Hawaiian monk seal (Monachus schauinslandi)	3	5.2	Define terrestrial habitat use by sex, age and sub-pop	Ongoing Not Current			Pacific Islands Fisheries Science Center	Research: Ecosystem Studies, Research: Habitat Requirements, Research: Habitat Status	Graduate Student, Internal Field Assistance, Species Expert	Part of 12.1

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Hawaiian monk seal (Monachus schauinslandi)	3	5.2.1	Complete analysis of terrestrial habitat selection by pregnant and lactating females	Not Started			Pacific Islands Fisheries Science Center	Research: Ecosystem Studies, Research: Habitat Requirements	Graduate Student, Species Expert	See 5.2
Hawaiian monk seal (Monachus schauinslandi)	3	5.2.2	Examine relationship between pupping habitat type and juvenile survival	Ongoing Not Current			Pacific Islands Fisheries Science Center	Research: Ecosystem Studies, Research: Habitat Requirements, Research: Habitat Status	Internal Field Assistance, Species Expert	See 5.2
Hawaiian monk seal (Monachus schauinslandi)	2	5.3.1	Investigate rebuilding pupping habitat and evaluate possible colonization of Johnston Atoll	Not Started			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Cost to be determined; action commensurate with results from feasibility study
Hawaiian monk seal (Monachus schauinslandi)	2	5.3.2	Collect high resolution elevation and bathymetry data for the NWHI using Light Detection and Ranging (LIDAR), and wave, wind, and tide level; model shoreline evolution under higher sea level scenarios and devise strategies for active mitigation of hazards [2, R]	Not Started			Pacific Islands Fisheries Science Center	Work type not yet selected	Labor type not yet selected	
Hawaiian monk seal (Monachus schauinslandi)	1	5.4.1	Strengthen cooperative efforts with agencies and organizations responsible for managing beach areas where local groups or colonies of monk seals may become established in the MHI to ensure that measures are in place to avoid disturbance or displacement of seals that haul out to rest, pup, or molt	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, State of Hawaii	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats	Species Expert	Included in 8.1

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Hawaiian monk seal (Monachus schauinslandi)	2	5.4.2	Engage state, county and business officials to minimize loss of monk seal habitat due to development	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, State of Hawaii	Management: Habitat Maintenance and Manipulation, Management: Identify/Protect Foraging, Breeding and Mig Habitats	Species Expert	Included in 5.4.1 & 8.1
Hawaiian monk seal (Monachus schauinslandi)	3	5.4.3	Complete removal of contaminants (a) and repair sea wall (b) at Tern Island	Not Started			Fish and Wildlife Service	Work type not yet selected	Labor type not yet selected	Partially done, cost to complete not yet determined
Hawaiian monk seal (Monachus schauinslandi)	2	5.4.4	Maintain current contingency plan to deal with environmental disasters	Not Started			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service, State of Hawaii	Work type not yet selected	Labor type not yet selected	Included in 5.4.1 & 8.1
Hawaiian monk seal (Monachus schauinslandi)	1	6.1.1	Identify and mitigate the level of direct interaction between seals and commercial and recreational fisheries	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management: Monitor and Estimate Bycatch, Management: Reduce Bycatch, Management: Reduce Threats in/to Marine Habitats	Species Expert	Total cost for all 6.1 actions together is estimated to be \$150,000
Hawaiian monk seal (Monachus schauinslandi)	1	6.1.2	Identify procedures and technology to mitigate seal interactions with fisheries	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management: Monitor and Estimate Bycatch, Management: Reduce Bycatch	Species Expert	Total cost for all 6.1 actions together is estimated to be \$150,000
Hawaiian monk seal (Monachus schauinslandi)	2	6.1.3	Identify and mitigate the potential seal interactions with marine aquaculture	Ongoing Not Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management: Other	Species Expert	Total cost for all 6.1 actions together is estimated to be \$150,000
Hawaiian monk seal (Monachus schauinslandi)	3	6.1.4	Identify and mitigate Hawaiian monk seal interactions with fish aggregating devices (FADs)	Ongoing Not Current			Pacific Islands Regional Office	Management: Other	Species Expert	Total cost for all 6.1 actions together is estimated to be \$150,000
Hawaiian monk seal (Monachus schauinslandi)	1	6.1.5	Mitigate mortality from fisheries interactions by removing hooks from seals	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management: Stranding Response	Internal Field Assistance, Internal Technical Assistance, Species Expert	
Hawaiian monk seal (Monachus schauinslandi)	2	6.2	Reduce indirect fishery interactions with seals	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management: Monitor and Estimate Bycatch, Management: Reduce Bycatch	Internal Field Assistance, Internal Technical Assistance, Species Expert	Cost to be determined; based on research from action 1; action as necessary

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	2	6.2.1	Maintain full measures and protective intent of the Proclamation establishing the PMNM, to reduce Hawaiian monk seal interactions with fisheries	Ongoing Current			National Ocean Service	Management, Management: Habitat Maintenance and Manipulation	Internal Field Assistance, Internal Technical Assistance, Species Expert	Measures and protections of Proclamation will result from monument process, no additional cost
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	3	6.2.2	Use diet analysis, foraging studies, nutritional status, and ecosystem monitoring to evaluate possible competition with fisheries	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Bycatch Reduction, Research: Competition, Research: Dietary Studies	Internal Field Assistance, Internal Technical Assistance, Species Expert	See action 1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	7.1.1	Identify aggressive males	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Demographic Studies, Research: Population Assessment	Internal Field Assistance, Internal Technical Assistance, Species Expert	See 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	7.1.2	Remove aggressive males, translocate if possible, or euthanize; periodically review criteria for removing aggressive males	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service	Research: Demographic Studies, Research: Population Assessment	Internal Field Assistance, Internal Technical Assistance, Species Expert	Rely on emergency Prescott funding
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	7.2	Monitor populations with unknown injuries (to determine cause) by extending/increasing field effort, if necessary to identify cause(s) and to determine role of male aggression	Ongoing Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Demographic Studies, Research: Population Assessment	Internal Field Assistance, Internal Technical Assistance, Species Expert	Included in 12.1
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	1	7.3	Treat injuries resulting from male aggression, where/when feasible	Ongoing Current			Pacific Islands Fisheries Science Center	Research	Internal Field Assistance, Internal Technical Assistance, Species Expert	Included in 12.1

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Hawaiian monk seal (Monachus schauinslandi)	1	8.1	Reduce inadvertent disturbance of monk seals by having adequate island coordinators and staff to implement outreach campaigns and volunteer groups to reduce human-seal interactions	Ongoing Current			Pacific Islands Regional Office	Management: General	Internal Field Assistance, Internal Technical Assistance, Species Expert, Volunteer	Coverage for all possible user interactions to include main HI Island specific coordinators
Hawaiian monk seal (Monachus schauinslandi)	2	8.2	Investigate feasibility of translocating mother-pup pairs or deterring pregnant females from high public use areas to remote locations, and if feasible, consider the use of an ESA enhancement permit to authorize this activity when adequate protection for the pair cannot be provided by other means	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management, Management: Reduce Threats in/to Marine Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	Cost to be determined; completed on a case by case basis
Hawaiian monk seal (Monachus schauinslandi)	2	8.3	Develop a monk seal pupping and haul-out intervention plan to determine if, when, where, and how monk seals might be moved to reduce risks of potential adverse interactions between seals and people in the MHI	Ongoing Not Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management, Management: Identify/Protect Foraging, Breeding and Mig Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 8.1
Hawaiian monk seal (Monachus schauinslandi)	2	8.4	Document and assess procedures for protecting seals that haul-out on recreational beaches, to reduce likelihood and impact of human	Ongoing Not Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office	Management, Management: Identify/Protect Foraging, Breeding and Mig Habitats	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 8.1

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Hawaiian monk seal (Monachus schauinslandi)	2	8.5	Continue permitting requirement and training process for all NWHI travel to facilitate reduction of human disturbance at breeding sites	Ongoing Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service, National Ocean Service	Research: Habitat Requirements	Internal Field Assistance, Internal Technical Assistance, Species Expert	Part of 8.1
Hawaiian monk seal (Monachus schauinslandi)	2	8.6	Maintain a research and/or enforcement presence at sites where necessary to prevent human disturbance	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service, NMFS Office of Law Enforcement	Other: Law Enforcement, Research: General	Internal Technical Assistance, Species Expert	Part of 8.1
Hawaiian monk seal (Monachus schauinslandi)	2	8.7	Evaluate and minimize adverse effects of future development or increased use of the NWHI with respect to impact on monk seals; no facility should be constructed in the NWHI without a review by NOAA to ensure compliance with the MMPA and ESA	Ongoing Current			Pacific Islands Fisheries Science Center, Pacific Islands Regional Office, Fish and Wildlife Service, National Ocean Service	Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Planning, Management: Reduce Threats in/to Marine Habitats	Internal Technical Assistance, Species Expert	Part of 8.1
Hawaiian monk seal (Monachus schauinslandi)	3	8.8	Determine if handling associated with the application and removal of telemetry and data-logging devices alters the behavior or hauling site preferences of seals	Ongoing Current			Pacific Islands Fisheries Science Center	Research: Management Techniques, Research: Population Assessment	Internal Field Assistance, Internal Technical Assistance, Species Expert	Included in 12.1
Hawaiian monk seal (Monachus schauinslandi)	2	9.1	Develop contingency plan to manage a biotoxin dieoff in monk seals, considering possible steps to detect, capture, and rehabilitate monk seals that are affected by biotoxins	Ongoing Not Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Environmental Contaminants	Internal Technical Assistance, Species Expert	Cost to be determined; completed on a case by case basis

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	2	9.2	Develop an appropriate and sensitive assay for biotoxins and metabolites in tissues of monk seals and prey species	Ongoing Not Current			Pacific Islands Fisheries Science Center	Research: Environmental Contaminants	Internal Field Assistance, Internal Technical Assistance, Species Expert	
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	3	9.3	Investigate biotoxin dose-response effects on monk seals through opportunistic sampling and retrospective studies	Ongoing Not Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Environmental Contaminants	Internal Field Assistance, Internal Technical Assistance, Species Expert	\$100K for assay, plus annual testing and monitoring
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	3	9.4	Develop a collaborative link with Harmful Algal Bloom monitoring programs, for detection of potential toxic blooms	Ongoing Not Current			Pacific Islands Fisheries Science Center, Fish and Wildlife Service	Research: Environmental Contaminants	Internal Field Assistance, Internal Technical Assistance, Species Expert	